

Requirements Document

Summary Description:

The Requirements Document contains the business and technical capabilities and constraints of the IT project or automated system to be developed. The primary purpose of the Requirements Document is to clearly communicate the goals, needs, and objectives of the user(s) and/or organization (i.e., customer requirements) to the technical community who will specify and build the end product (e.g., automated system). The Requirements Document provides a solid foundation for the end product, and provides the first view of what the intended product must do and clear descriptions of how the automated system should perform. The Requirements Document also provides a basis for design, and serves as a foundation for testing and user acceptance of the end product.

Included in the Requirements Document are business requirements, which are statements of the functions or program needs that must be met in order to accomplish the business objectives of the IT project. Also included are functional and nonfunctional requirements, which are lower-level requirements that further define the expectations for the end product. Functional requirements are actions or expectations of what the automated system will take or do, and are measured by concrete means like data values, decision-making logic and algorithms. Nonfunctional requirements are behavioral properties that the automated system must have. The Requirements Document also provides traceability information that identifies dependencies between requirements, or between the requirements and the requirement sources and other documentation (e.g., [System Design Document \[SDD\]](#)).

Status:

Mandatory - All IT projects and automated systems must have some form of a Requirements Document that contains a complete set of high-level business requirements at the very minimum, as well as lower-level functional and nonfunctional requirements, events and scenarios as appropriate. The documented business requirements are a required part of the [Business Case Analysis \(BCA\)](#). All requirements that are developed are to be housed in the Dynamic Object-Oriented Requirements System (DOORS), which is CMS' standard requirements management software tool. If requirements are initially documented in another requirements management software tool, they must be able to be imported into DOORS.

Timeframe:

The high-level business requirements and context for the IT project or automated system are initially documented in the [Business Case Analysis](#) that is prepared during the [Business Case Analysis Phase](#). During the [Requirements Analysis Phase](#), the business requirements and context diagram are incorporated into the Requirements Document along with the further defined and documented lower-level functional and nonfunctional requirements, events and scenarios. The Requirements Document may be iteratively

produced during various stages of the system development life cycle based on the particular circumstances of the IT project and the system development methodology being employed for developing the automated system. If an automated system is developed in multiple builds or releases, a Requirements Document will likely be required for each major release. Activities performed during the subsequent [Design & Engineering Phase](#), [Development Phase](#), and [Implementation & Testing Phase](#) will be dependent on the requirements defined in the Requirements Document.

Responsible Reviewing Component:

[OIS/PMSG](#) is the CMS component that has the primary decision authority over the need for a Requirements Document, the principles and guidance for its creation, and acceptance of the end product in meeting the information needs. OIS/PMSG also serves as [Project Officer](#) and Subject Matter Expert (SME) for the Dynamic Object-Oriented Requirements System (DOORS) requirements management tool at CMS.

Primary Information Exchange Partners:

The following are the primary stakeholders who have an interest in the content of the Requirements Document:

[Project Owner/Manager](#)
[Business Owner\(s\)/Partner\(s\)](#)
[System Developer](#)
[System Owner/Manager](#)
[Executive Steering Committee \(ESC\)](#)
[OIS/ITAPS](#)
[OIS/EDG](#)
[OIS/SSG](#)
[OIS/TMG](#)

Government Responsibilities:

The [Business Owner\(s\)/Partner\(s\)](#) and [Project Owner/Manager](#) should be thoroughly familiar with the content of the [Business Case Analysis \(BCA\)](#) prepared for the IT investment/project, as the BCA will be of great assistance and in some cases will provide the information necessary to prepare key aspects of the Requirements Document. For example, the BCA should include the business requirements and a preliminary Work Context Diagram (described below), and it is the responsibility of the Project Owner/Manager to ensure that this information is complete.

The Business Owner(s)/Partner(s) and the Project Owner/Manager should also participate as members of the requirements engineering team. The Project Owner/Manager, other CMS employee, or a contractor should serve as the primary Requirements Engineer tasked with gathering and writing the requirements for the IT project or automated system. While gathering and writing the requirements, the Requirements Engineer

communicates regularly with the project team and the Subject Matter Experts (SMEs) (i.e., Stakeholders) who have specific knowledge regarding the domains that interact with the system.

The Project Owner/Manager is also responsible for managing the development of the Requirements Document and the individual requirements comprising it, as well as continued management of them after they are baselined. This includes ensuring requirements traceability; reviewing requirements; baselining requirements prior to informal review, prior to formal walkthrough, and after acceptance; tracking change requests (when appropriate); and enforcing writing standards. The Project Owner/Manager is also responsible for planning, coordinating the activities, and facilitating the review of the requirements that are developed in-house. Requirements are to be stored and managed via the Dynamic Object-Oriented Requirements System (DOORS) product.

Contractor Responsibilities:

A contractor may be utilized to assist in gathering and writing the requirements and producing the Requirements Document for the IT project or automated system. If so, the contractor is responsible for performing an informal review at the contractor's site prior to delivery of the Requirements Document to CMS for formal review.

Content:

The Requirements Document is comprised of the following key information:

- Functional Purpose describing "what" the IT project or automated system shall do for the business.
- Business Purpose describing "why" CMS would fund the IT project, which must be related to the mission of the organization and/or financial concerns. These business objectives generally address legislative mandates or strategic business goals (e.g., improved customer service, business efficiencies, business process reengineering, etc.).
- Measures of Success that are quantifiable and related to the business and functional purposes.
- Stakeholders of the IT project or automated system comprised of those who will pay for it, use it, be positively affected by it, as well as adversely affected by it.
- Risks and Assumptions affecting project planning decisions.
- Mission Profile identifying what is most important in terms of scope, resources, schedule and allowable defects should a conflict arise among these competing priorities.
- Work Context Diagram that conveys the precise scope of study by depicting all entities that will have knowledge of the IT project or automated system and that will interact with it.
- Business Requirements that specify at the most general level of detail "what" the end product must do to support the business purpose.

- Functional and Nonfunctional Requirements, Events and Scenarios (Use Cases) that specify at a more detailed level "what" the end product must do to support the user needs, including required states and modes and the functions and performance requirements of the system. Specifically addressed are safety, security, and privacy protection requirements; human-factors engineering (ergonomics) requirements; system external interface requirements; operations and maintenance requirements; system environmental requirements; design constraints and qualification requirements; computer resource requirements; system quality characteristics; internal data requirements; installation-dependent data requirements; physical requirements; personnel, training, and logistics requirements; and/or packaging requirements. Precedence and criticality of the requirements should also be indicated as appropriate.

For more detailed information regarding the format and content of the Requirements Document, see Appendix B of the [CMS Requirements Writer's Guide \(PDF - 323KB\)](#).

Guidance:

CMS follows the guidance specified in Section 6.26.3 of IEEE/EIA 12207.1-1997, IEEE/EIA Guide for Information Technology, Software Life Cycle Processes - Life Cycle Data with respect to requirements. CMS has tailored this IEEE standard to fit the needs of the Agency. The results of this tailoring with regard to requirements are documented within the [CMS Requirements Writer's Guide \(PDF - 323KB\)](#), which provides guidance on how to scope, write, organize and review business, functional and nonfunctional requirements, events and scenarios.

If you need assistance in scoping, writing, organizing, and reviewing requirements, or in obtaining access to and/or training in the use of the DOORS requirements management tool, please contact your designated [Component Lead](#), who will put you in touch with a representative from [OIS/PMSG](#) to assist you.

Review Process:

The team that was involved in drafting the requirements conducts an informal review prior to the performance of a formal walkthrough and final acceptance. The purpose of this incremental review process is to identify and resolve any defects or issues prior to baselining in an effort to achieve final agreement and acceptance of the requirements by the Stakeholders. If the Project Owner/Manager serves also as the Requirements Engineer, then it is important for someone else to review the Requirements Document. For more detailed information regarding the requirements review process, see the [CMS Requirements Writer's Guide \(PDF - 323KB\)](#).

The information contained in the Requirements Document is utilized by the Primary Information Exchange Partners listed above at various times throughout the IT investment and system life cycles. The business requirements that are documented in the initial version of the Requirements Document as part of the [Business Case Analysis](#)

[\(BCA\)](#) serve as input to the [Investment Selection Review \(ISR\)](#). Subsequent versions of the Requirements Document containing additional functional and nonfunctional requirements also serve as valuable input to the [Requirements Review](#), [Preliminary Design Review \(PDR\)](#), [Detailed Design Review](#), and [Validation Readiness Review \(VRR\)](#).

Date Created/Modified:

December 2004